

Remarks:

Reconsideration of the application is respectfully requested.

Claims 1 - 16 and 20 - 24 are presently pending in the application. Claims 10, 13 and 20 - 23 have been amended.

In item 3 of the above-identified Office Action, claims 10 and 13 were rejected as being indefinite under 35 U.S.C. § 112, second paragraph, for reciting a "second switching matrix", when a "first switching matrix" was allegedly not previously recited in that claim, or a claim from which that claim depends. Claims 10 and 13 have been amended to recite a "signal block switching matrix" in place of the "second switching matrix".

In item 4 of the above-identified Office Action, claims 20 - 23 were rejected as being indefinite under 35 U.S.C. § 112, second paragraph, for reciting a method, while allegedly incorporating an apparatus claim therein. Although it is believed that the claims were proper and used wording which is standard, claims 20 - 23 have been amended herein to facilitate prosecution and address the above rejection. These amendments cannot raise new issues since, by definition, the added subject matter was already present in the claims.

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It is accordingly believed that the claims meet the requirements of 35 U.S.C. § 112, second paragraph.

In item 6 of the Office Action, claims 1 - 4, 7 - 9, 11, 12, 16 and 20 - 24 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over U. S. Patent No. 6,137,613 to Ushirozawa ("USHKIROZAWA") in view of U. S. Patent No. 6,285,479 to Okazaki et al ("OKAZAKI"). In item 7 of the Office Action, claims 5, 6, 14 and 15 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over USHKIROZAWA in view OKAZAKI, and further in view of U. S. Patent No. 6,275,511 to Pan et al ("PAN").

Applicant respectfully traverses the above rejections.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful. In the claimed invention, in order to feed a plurality of signals from a plurality of users into an optical network, a number of light signals of different wavelengths are first generated in an access node. Then, an unmodulated light signal of the light signals is extracted from the access node and is transmitted to one of a number of user devices. In the user device the extracted unmodulated light signal is modulated with a user signal to form a modulated light signal.

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This modulated light signal is then injected (i.e., coupled) into the access node.

Such a method has advantages. First of all, it is not necessary for the respective user devices connected to the access node to include respective transmitters or light sources in order to transmit user information to the access node. Furthermore, it is avoided that complex and expensive methods and means have to be provided in a user device by which available carrier frequencies (those that are used in the optical network or access node for information transmission) can be generated.

Contrary to Applicant's claimed invention, the USHIROZAWA reference neither teaches, nor suggests, among other limitations of Applicant's claims, modulating the light signals in the user devices. USHIROZAWA's failure is supported on page 3 of the Office Action, which states, in part:

"Ushirozawa differs from claims 1, 16 and 20 - 23 [sic] in that he does not specifically teach the unmodulated light signals of the light sources can be modulated in the user devices."

However, it's not just that USHIROZAWA "does not specifically teach the unmodulated light signals of the light sources can be modulated in the user devices." Contrary to Applicant's

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claimed invention, USHIROZAWA affirmatively teaches that the unmodulated light sources are modulated someplace other than the user devices. More specifically, USHIROZAWA affirmatively teaches that the unmodulated light sources are modulated in the optical transmitter, and thus, cannot be modulated in the user devices. See, USHIROZAWA, col. 4, lines 53 - 65.

Contrary to the disclosure in USHIROZAWA of modulating the light in the optical transmitter, and not in the user device, the Office Action alleges that the USHIROZAWA reference can be combined with OKAZAKI to allegedly disclose Applicant's claimed invention. More particularly, it is stated in the Office Action, on pages 2 - 3:

"However, Okazaki in US Patent No. 6,285,479 teaches the unmodulated light signals of the light sources can be modulated in the user devices (Fig. 11, col. 21, lines 44-67 and col. 22, lines 1-11). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the unmodulated light signals of the light sources can be modulated in the user devices as taught by Okazaki in the system of Ushirozawa. One of ordinary skill in the art would have been motivated to do this since Okazaki suggests in column 21, lines 44-67 that using such the unmodulated light signals of the light sources can be modulated in the user devices have advantage of allowing the user terminal can be accessed to the optical network."

Applicant respectfully traverses the statement in the Office Action, alleging that any combination of the USHIROZAWA and

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OKAZAKI references would teach or suggest Applicant's claimed invention.

First, to so combine the USHIROZAWA and OKAZAKI references, would clearly destroy the teachings of the USHIROZAWA reference to modulate the light signals in the optical transmission apparatus.

Second, a person of skill in the art reading USHIROZAWA and OKAZAKI would not be motivated to combine the access node of USHIROZAWA with the "user devices" of OKAZAKI. The Office Action points to OKAZAKI, col. 21, lines 44 - 67 and col. 22, lines 1-11 and Fig. 11 as providing the motivation to combine OKAZAKI with USHIROZAWA, and to allegedly disclose Applicant's claimed invention. Applicant respectfully disagrees. Col. 21, line 44 - col. 22, line 11 of OKAZAKI states:

"The adding means 220 functions as an adding section to add transmission optical signals having 5 kinds of wavelengths corresponding to the wavelengths dropped in the dropping means 210 into the transmission optical fiber 301W. The adding means 220 is composed of LD light sources 221a1 to 221a8 for outputting lights with 8 kinds of wavelengths different from each other, an 8x1 coupler 223, a demultiplexer 224 acting as a multiplexing and branching section for power-branching a multiplexed light into at least 5x2+1, a wavelength stabilizing circuit 225, tunable filters 226, modulators 227, a 5x1 coupler 228, and an amplifier 229.

The 8x1 coupler 223 is for multiplexing wavelengths from the LD light sources 221a1 to 221a8 to forward the multiplexing result to the demultiplexer 224. Because

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each of the optical ADM units 200W and 200P receives 5 kinds of lights having wavelengths different from each other through the demultiplexer 211, the demultiplexer 224 sends the multiplexed light to the 10 tunable filters 226, and further forwards a portion of the multiplexed light to the wavelength stabilizing circuit 225. Each of the tunable filters 226 allows the light with the wavelength the demultiplexer receives to pass under the control of a wavelength setting control circuit 226-1 (not shown in FIG. 11). Each of the modulators 227, serving as a modulating section, conducts the modulation of light with a given wavelength from the tunable filter 226 coupled in series thereto. The 5x1 coupler 228 multiplexes optical signals different from each other from the 5 modulators 227 to output the multiplexed optical signal through the amplifier 229 to the optical fiber 301. In a similar way, the optical signals from the other 5 modulators 227 are outputted through the 5x1 coupler 228 to the P system optical fiber 301. In the following description, the other 5 modulators 227, the tunable filters 226, the 5x1 coupler 228 and others belonging to the P system may be marked with p." [emphasis added by Applicant]

Reviewing the above portion of OKAZAKI, it can be seen that OKAZAKI discloses an optical ADM (add-drop multiplexer) unit 200, as part of a ring network 300 (figure 10 of OKAZAKI). Besides other components, the optical ADM unit 200W (figure 11) includes dropping means or demultiplexer 210 serving as a dropping section to drop arbitrary optical signals of a multiplexed optical signal. See, OKAZAKI, col. 21, lines 18 - 35. Further, the ADM unit 200W includes an inserting means or adding means 220, functioning as an adding section to add transmission optical signals having five kinds of wavelengths corresponding to the wavelengths dropped in the dropping means

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210 into the transmission optical fiber 301W. See, OKAZAKI,
col. 21, lines 44 - 48.

Since the adding means 220 comprises modulators 227 for
modulating unmodulated light signals which are then coupled
onto the optical fiber 301 by the coupler 206, it is believed
to be the adding means 220 that is being pointed to in the
Office Action as allegedly corresponding to Applicant's
claimed user devices.

However, according to OKAZAKI, col. 21, lines 48 - 54, the
adding means 220 of OKAZAKI includes eight "LD light sources
221A1 to 221A8 for outputting lights with 8 kinds of
wavelengths different from each other". As such, contrary to
the presently claimed invention, the alleged "user devices" of
the OKAZAKI reference have both their own characteristic light
sources 221A1 to 221A8 for the unmodulated light signals and
modulators 227 for modulating the light signals. As such,
OKAZAKI fails to teach or suggest, Applicant's claimed access
node and user devices. OKAZAKI performs both unmodulated
light generation and modulation, in the same device, adding
means 220.

It is not possible to take only one aspect of the ADM unit of
OKAZAKI (i.e. that unmodulated light signals of light sources

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are modulated in user devices) without additionally looking at the entirety of circumstances in which that aspect occurs. In OKAZAKI, it is important to the teachings of that reference, that the adding means 220 includes both the light sources 221A1-221A8 for outputting lights with eight kinds of wavelengths different from each other, as well as the modulators 227. Taking only the modulation of light in the alleged "user device" of OKAZAKI (while suppressing its further teaching of the LD light sources in the same device) and combining that with the teachings of USHIROZAWA (having

the light sources in the optical transmission apparatus) either, fails to teach the instant invention, or if argued to teach the instant invention, can only possibly do so through impermissible hindsight reconstruction of Applicant's invention.

Further, even if the alleged "access node" (optical transmitter) of USHIROZAWA were to be combined with the alleged "user devices" (adding means 20) of OKAZAKI, the combination would still be missing any teaching or suggestion that unmodulated light signals are transmitted from the access node to the user devices. A person of skill in the art, reading the OKAZAKI reference, would have no motivation to remove the light sources 221A1-221A8 from the adding means 220 of OKAZAKI and, instead, to receive instead unmodulated light

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signals from an access node, with which to modulate the user data. To the contrary, there is no teaching or suggestion in either OKAZAKI or USHIROZAWA that would teach, suggest or motivate a user to combine the references, as set out in the Office Action. Additionally, altering the system of OKAZAKI to be compatible with an "access node" of USHIROZAWA would require great effort and would not be accomplished without some motivation to make the change, all of which is absent from the OKAZAKI and USHIROZAWA references. As such, absent impermissible hindsight reconstruction of Applicant's

invention, no one skilled in the art reading the OKAZAKI and USHIROZAWA references, would possibly arrive at Applicant's claimed invention.

Further, even, if by some chance, USHIROZAWA were combinable with OKAZAKI, the combination would still not teach or suggest Applicant's claimed invention, because neither USHIROZAWA or OKAZAKI teach or suggest transmitting unmodulated light signals from the "access node" to the "user devices", as required by Applicant's claims.

Further, the PAN reference fails to teach or suggest the above-noted elements missing from the USHIROZAWA and OKAZAKI references, among others.

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It is accordingly believed that none of the references, whether taken alone or in any combination, teach or suggest the features of claims 1, 16 and 20 - 24. Claims 1, 16 and 20 - 24 are, therefore, believed to be patentable over the art. The dependent claims are believed to be patentable as well because they all are ultimately dependent on claim 1. As it is believed that the claims were patentable over the cited art in their original form, the claims have not been amended to overcome the references.

In view of the foregoing, reconsideration and allowance of claims 1 - 16 and 20 - 24 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate receiving a telephone call so that, if possible, patentable language can be worked out. In the alternative, the entry of the amendment is requested, as it is believed to place the application in better condition for appeal, without requiring extension of the field of search.

If an extension of time for this paper is required, petition for extension is herewith made.

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Please charge any fees that might be due with respect to
Sections 1.16 and 1.17 to the Deposit Account of Lerner and
Greenberg, P.A., No. 12-1099.

Respectfully submitted,



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